

REMARKS/ARGUMENTS

Claims 1-4, 6-13, and 16-19 are being resubmitted. Claims 1, 8, 18, and 19 are currently amended. Claims 5, 14, and 15 are canceled with this current amendment. No new claims have been added.

Claim 18 has been rejected under 35 USC § 112, second paragraph. Claims 1-4, 6, and 19 have been rejected under 35 USC 102(b) as being anticipated by Lapierre et al. (US 6,163,230) ("Lapierre"). Claim 5 has been rejected under 35 USC 103(a) as being unpatentable over Lapierre in view of Plenge et al. (US 5,499,271) ("Plenge"). Claim 7 has been rejected under 35 USC 103(a) as being unpatentable over Lapierre in view of Desrosiers (US 6,434,199). Claims 8-13, 16, and 18 have been rejected under 35 USC 103(a) as being unpatentable over Lapierre in view of admitted prior art. Claims 14-15 have been rejected under 35 USC 103(a) as being unpatentable over Lapierre in view of admitted prior art and further in view of Plenge. Claim 17 has been rejected under 35 USC 103(a) as being unpatentable over Lapierre in view of admitted prior art and further in view of Desrosiers.

Examiner Interview

On August 8, 2005, a telephone interview was conducted between the Examiner, the Examiner's Supervisor and Applicants' representative. A proposed amendment and the references, in particular, U.S. Patent No. 5,499,271 (Plenge et al.) were discussed. Applicants thank the Examiner and his supervisor for the discussion. No agreement was reached.

Objections to the Specification

The specification has been objected to for an improper recitation, and the

recitation "314 and 316" on page 3 line 28 is changed to --314 and 324-- by the above amendment to paragraph [008] in accordance with the Examiner's suggestion, for which Applicants thank the Examiner. Thus, it is believed that the objection should be withdrawn.

The title has been objected to and a new title required. Applicants have amended the title in accordance with the Examiner's suggestion and thank the Examiner for the suggestion.

Rejections under 35 USC § 112

Claim 18 has been rejected under 35 USC § 112, second paragraph.

The recitation of "said second data bit information" in line 25 has been objected to as having insufficient antecedent basis. Claim 18 has been amended to address this objection.

The recitation of "substantially identical" configurations has been objected to for being "not clear what is substantially identical and is not substantially identical." Claim 18 has been amended to address this objection. Applicants submit that the meaning of "identical configuration" as recited in the claim (as amended) is clear and is supported by the specification, for example, at paragraph [0035], and more specifically at paragraph [0039] which states, in part,

Each signal 831 and 841 then passes through identical BPSK modulators 830 and 840, which may be identically configured on an MMIC or ASIC chip to achieve the precision phase and amplitude balance of QPSK modulator 800.

In addition, claim 18 has been amended to further clarify the usage of "configured" in the claim as distinct from identical "configuration".

Therefore, Applicants respectfully submit that the section 112 rejections to claim 18 should be withdrawn.

Lapierre

Claims 1, 8, 18, and 19 have been amended, support for which may be found in the specification, for example, at paragraphs [0037] and [0039].

Applicants agree with the Examiner that neither Lapierre nor the admitted prior art disclose a notch filter centered on the carrier frequency. Moreover, neither Lapierre nor any of the prior art cited, whether alone or in combination provide any suggestion or motivation for notch filters centered on the carrier frequency of the RF carrier being modulated (as claimed by amended claims 1, 8, 18, and 19) for preventing interference between the data information and the RF carrier that is being modulated by that data information.

Additionally, neither Lapierre nor any of the prior art cited, whether alone or in combination provide any suggestion or motivation for identically configured modulators or identical notch filters (as in claim 18 as amended) which allow the modulation system of claim 18 to achieve the precision phase and amplitude balance of the QPSK modulator disclosed for improved bandwidth efficient modulation (BEM).

Therefore, Applicants respectfully submit that the rejections based on Lapierre, alone or in combination with any other prior art, should be withdrawn.

Plenge

While Plenge may disclose the use of notch filters centered about a distinct RF carrier frequency separate from the frequency of the (plurality of) RF carriers being modulated with the data of interest, Plenge does not disclose a notch filter centered about the frequency of the RF carriers being modulated with the data of interest, as in the amended claims to the present invention, and therefore Plenge not only does not provide suggestion or motivation for the notch filters of the present invention as claimed by the amended claims, but furthermore teaches away from the present invention.

More specifically, Plenge discloses modulating a plurality of RF carriers with digitally coded data (data signal 4 or data signals 4a, 4b) to be inserted in frequency gaps "G" between FM services 1, 2, and 3 (col. 2, lines 27-34 and Figs. 1 and 2). The plurality of RF carriers with signal 4 is inserted into the gap between FM services 1 and 2 so as not to interfere with those services (col. 2, lines 33-38 and Fig. 2). Alternatively, the plurality of RF carriers with partial signals 4a and 4b is inserted into the gaps around FM service 2 so as not to interfere with that service (col. 3, lines 28-32 and Fig. 1;). In either case, it is sought to avoid interference between the FM services (1, 2, or 3) and the plurality of RF carriers modulated by the data of interest (signal 4 or signals 4a, 4b) (see, e.g., col. 3, lines 47-50). Plenge thus discloses (col. 3, lines 51-63) using a notch filter to select the plurality of RF carriers of signals 4a, 4b while rejecting the RF carrier of the external FM service "with the aid of a notch filter whose stop band corresponds to the frequency position of FM service 2" (Fig. 1) or, alternatively, (col. 3, line 64 through col. 4, line 5) using a bandpass filter with a passband "at least as wide as the frequency range occupied by data signal 4 (Fig. 2) to select the plurality of RF carriers of signal 4 while rejecting the RF carrier of the external FM service. Nowhere does Plenge disclose or suggest using a notch filter centered on the plurality of RF carriers of data signal 4 (4a, 4b) to prevent interference of the data with its own RF carrier, as claimed

by the present (amended) claims.

Thus, the use of notch and bandpass filters disclosed by Plenge are those well known in art to exclude carriers of other signals from the signal of interest, for which mutual interference is desired to be avoided. The counterintuitive use of notch filters to exclude the frequency of the carrier being modulated from the data modulating that frequency, as claimed by the present invention, is an unusual use not disclosed or suggested by any of the prior art cited, and is contrary to the principles of operation disclosed by Plenge. For example, Plenge discloses his use of notch filters for reception and demodulation of signals (col. 3, line 51 through col. 4, line 5) in contrast to the use claimed by the present invention for transmission and modulation.

Furthermore, neither Plenge nor any of the other prior art of record disclose the use of paired or identical notch filters, as claimed, which achieve the precision phase and amplitude balance of the QPSK modulator for improved bandwidth efficient modulation.

Therefore, even though Plenge and Lapierre may be concerned with analogous art, Applicants submit that Plenge teaches away from the present invention as claimed and that the rejections based on Plenge, alone or in combination with any other prior art, should be withdrawn.

CONCLUSION

Applicants would like to thank the Examiner and his Supervisor for the telephone interview of August 8, 2005.

Reconsideration and withdrawal of the Office Action with respect to claims 1-4, 6-13, and 16-19 are requested. Applicant respectfully requests that

a timely Notice of Allowance be issued in this case.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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on September 8, 2005

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